

REMARKS

As a preliminary matter, Applicants appreciate the Examiner's acknowledgement of allowable subject matter contained in claims 10-11. Claim 10 is generally written in independent form, with the amendments of claim 8 incorporated into claim 10. Furthermore, the control voltage is clarified as being for controlling the state of the switching elements and the DC voltage is clarified as the voltage applied to the data bus lines. Claim 11 has the control voltage and DC voltage amended as in claim 10. For these reasons, Applicants earnestly solicit allowance of claims 10-11.

The title of the invention is objected to as not being descriptive. Accordingly, Applicants amended the title to read "METHOD OF MANUFACTURING A LIQUID CRYSTAL DISPLAY DEVICE HAVING SPONTANEOUS POLARIZED LIQUID CRYSTAL AND LIQUID CRYSTAL DISPLAY DEVICE FORMED BY THE METHOD", and request withdrawal of the objection on this basis.

Claim 12 stands rejected under 35 U.S.C. 112 as failing to comply with the enablement requirement. More specifically, the Examiner considers the "control voltage" for turning on the switching elements as being zero to be unclear. Accordingly, Applicants amended claim 12 to clarify that the control voltage is for controlling the state of the switching elements and the DC voltage is applied to the data lines, and the difference in potential between these voltages is zero. Thus, it is the potential between these two voltages that is zero, and not the control voltage itself, which controls the switching device. For this reason, withdrawal of the §112 rejection of claim 12 is respectfully requested.

Claims 1-3 and 8-9 stand rejected under 35 U.S.C. 102(e) as being anticipated by Hasegawa et al. (U.S. Patent No. 6,614,491). In response, Applicants amended independent claims 1 and 8 to clarify that the electric field applied to the liquid crystal has an electric field strength of more than 4 V/ μ m, and amended dependent claims 2 and 9 to clarify that the electric field strength of the electric field is equal to or more than 5 V/ μ m, and respectfully traverse. Applicants traverse because the cited reference does not disclose or suggest the electric field strength, as now recited in the claims, which is directly applied to the liquid crystal.

Hasegawa teaches a DC voltage or offset voltage that is applied to a cell as preferably in a range of 0.2V to 10V (col. 7, lns. 6-8). However, the electric field of Hasegawa is an external electric field that is applied when the Smectic C phase is formed (col. 7, lns. 34-35). Accordingly, Hasegawa does not disclose the electric field strength directly applied to the liquid crystal only. Rather, the electric field strength is determined by the voltage applied to the cell. However, a voltage applied to a cell results in a lower voltage being applied to the liquid crystal because other films sandwich the liquid crystal. That is, there is a voltage drop caused by an alignment film and/or any other films that the electric field must pass through before reaching the liquid crystal. Accordingly, Applicants submit that the electric field strength applied to the liquid crystal in Hasegawa would be less than the electric field strength of the external magnetic field because a liquid crystal has panel alignment films made of resin sandwiching the liquid crystal therebetween, as well as

electrodes on both sides of the alignment film. For this reason, withdrawal of the §102 rejection of claims 1-3 and 8-9 is respectfully requested.

Claims 4 and 7 stand rejected under 35 U.S.C. under 35 U.S.C. 103(a) as being unpatentable over Hasegawa, and further in view of Wingen et al. (U.S. Patent No. 6,605,323) or Miura et al. (U.S. Patent No. 6,703,993). Applicants respectfully traverse the rejections for the reasons recited above with respect to the rejection of independent claim 1.

Since claims 4 and 7 depend upon claim 1, they necessarily include all of the features of their associated independent claim plus other additional features. Thus, Applicants submit that the §103 rejections of claims 4 and 7 have also been overcome for the same reasons mentioned above to overcome the rejections of independent claim 1, and also because the Wingen and Miura references failed to disclose or suggest an electric field strength of more than 4 V/ μ m as being directly applied to the liquid crystal. Applicants respectfully request that the §103 rejections of claims 4 and 7 also be withdrawn.

Claims 1-6 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (U.S. Patent No. 6,307,610). Applicants respectfully traverse the rejection because the liquid crystal device of Jones is directed to a different structure than the present invention.

The present invention is configured for operating with a DC drive. Jones, however, is configured to operate with a AC drive. For at least this reason, the structure of the two inventions are different.

In addition, Jones is concerned with providing a C2 alignment and a ferroelectric liquid crystal display of a bistable type. The present invention, however, has a

structure made for providing a ferroelectric liquid crystal display of a monostable type. Thus, the present invention and liquid crystal device of Jones have different objects to achieve, and therefore produce completely different effects.

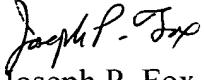
Furthermore, Jones teaches a simple matrix display which uses no switching element. Therefore, Jones teaches to use a ferroelectric liquid crystal of a bistable type in order to provide a stable display. In contrast, the present invention provides an active drive display using switching elements. Therefore, the present invention is capable of displaying by using monostable ferroelectric liquid crystal. That is, the present invention performs gradation display by means of ferroelectric liquid crystal, in combination with the active drive and the monostable ferroelectric liquid crystal. Since the structure and goal of achieving a lower black transparency and for stably providing a favorable monostable state is different than the liquid device of Jones, which is aimed at providing a bistable type of display, withdrawal of the §103 rejection of claims 1-6 is respectfully requested.

For all of the foregoing reasons, Applicants submit that this Application is in condition for allowance, which is respectfully requested. The Examiner is invited to contact the undersigned attorney if an interview would expedite prosecution.

Respectfully submitted,

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